



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/801,579	03/17/2004	Shigehisa Motowaki	1021.43681X00	2747

20457 7590 10/31/2007
ANTONELLI, TERRY, STOUT & KRAUS, LLP
1300 NORTH SEVENTEENTH STREET
SUITE 1800
ARLINGTON, VA 22209-3873

EXAMINER

LUK, EMMANUEL S

ART UNIT	PAPER NUMBER
----------	--------------

1791

MAIL DATE	DELIVERY MODE
-----------	---------------

10/31/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/801,579

Applicant(s)

MOTOWAKI ET AL.

Examiner

Emmanuel S. Luk

Art Unit

1722

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 August 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 1-6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 7-9 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chou (6309580) in view of Hubert (6957608).

Chou teaches the use of a release agent 17 on a surface and having a nanoimprint stamp having features 16 for forming ultra-fine patterns. The nanoimprinting of Chou does not have the material entering into the recessed portion 16a.

Chou fails to teach application of the release agent specifically on the convex surface of the pattern.

Hubert teaches a modified stamp 300 with protruding surfaces 311', 313', 315', and 317'. The stamp is brought into contact with the surface modifier 326 so that the modifier is on the protruding surfaces 311, 313, 315, and 317. The surface modifier can be a variety of materials (c. 7, l. 22-29). Hubert teaches the concept of differentiated protruding surfaces that is coated and different from the recessed surface (c. 7, l. 1-54). In summary, that a selected surface of the stamp is coated.

In regards to claim 9, the layer thickness of the release agent is dependent upon the amount applied and can be varied upon the application process. It can be varied upon the desires of the user and thus one skilled in the art recognizes that the thickness of the release agent can be modified according to amount desired for application. In regards to claim 14, this is a design choice in the surface shape of the mold layer surface.

It would have been obvious for one of ordinary skill in the art to modify Chou with application of a surface modifier as taught by Hubert because it allows for application of a surface modifier upon a targeted region of the surface.

4. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chou (6309580) in view of Hubert (6957608) as applied to claim 7 above, and further in view of Willson (6719915).

Chou fails to further teach the mold is made of a material consisting of a group of Si, SiC, SiN, polycrystalline Si, glass Ni, Cr, Cu, and combinations thereof.

The creation of a mold from one of these materials listed would have been obvious to one of ordinary skill in the art since mold are constructed from a variety of materials such as Silicon. Willson teaches that mold can be comprised of materials such as quartz, silicon, siloxane polymers, metal, organic polymers, borosilicate polyers, fluorocarbon polymers, and combinations thereof (Col. 4, lines 4-8).

It would have been obvious for one of ordinary skill in the art to modify Chou in view of Hubert with the mold material being constructed from the claimed group including silicon as taught by Willson because it allows for the mold to be transparent (Col. 4, lines 1-3).

5. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chou in view of Hubert as applied to claim 8 above, and further in view of Seltsmann et al (5073588).

Chou in view of Hubert fails to teach a silicone mold releasing layer, in particular a polydimethyl siloxane layer.

However, Seltsmann teaches that is known in the art to use polydimethyl siloxanes as a mold release agent (abstract), it is well known in the art to use polydimethyl siloxane as a mold release agent. Thus, it would have been obvious for one of ordinary skill in the art to modify Chou in view of Hubert with an application of polydimethyl siloxane as taught by Seltsmann because it has good release values for mold release (abstract).

Art Unit: 1722

6. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chou in view of Hubert as applied to claim 8 above, and further in view of Osawa (6855286).

Chou in view of Hubert fails to teach a diamond like carbon layer.

Osawa teaches the surface treatment with DLC (diamond like carbon) for an improvement in mold release properties (Col. 5, line 66 to Col. 6, line 8). Thus it is well known in the art for these properties to be applied onto a surface such as the one taught by Osawa. It would have been obvious for one of ordinary skill in the art to modify Chou in view of Hubert with a diamond like carbon layer as taught by Osawa on the desired surfaces for the improved release properties.

Response to Arguments

7. Applicant's arguments with respect to claims 7-9 have been considered but are not persuasive. The applicants argue concerning the combination of Chou with Hubert, in particular that Hubert is for the contact printing for fabrication of micro-devices and that these are different technologies that one would not have looked into the teachings of Hubert when concerned with Chou. Examiner strongly disagrees since both pertain to imprinting arts, thus are strongly related arts. In Chou, the use of mold release layers for nanoimprinting is known and one of ordinary skill will be drawn to examining related arts to solve problems in the field. In this case, the contact printing arts of Hubert is a related field that also addresses the use of a mold with contact with a molded material. The concept of applying a release layer to one particular portion of the surface is known

as shown by Hubert and thus one of ordinary skill in the art would recognize the relevance with Chou in the contact printing arts.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel S. Luk whose telephone number is (571) 272-1134. The examiner can normally be reached on Monday-Fridays from 9 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yogendra N. Gupta can be reached on (571) 272-1316. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1722

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

EL



YOGENDRA K. GUPTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700